

**Abstract**

A process of recovering metals from waste lithium ion/Ni-H/Ni-Cd batteries, wherein the waste batteries are calcined and sieved to generate an ash containing metals and metal oxides. The process includes subjecting the ash to a first 5 dissolution etching treatment, a first filtration treatment to obtain a filtrate containing Cd ions which are crystallized as cadmium sulfate, a second dissolution etching treatment for the filtered solid, and a second filtration treatment to obtain a second filtrate.  $\text{Fe}^{+3}$ ,  $\text{Al}^{+3}$  and rare earth metal ions in the second filtrate are precipitated as hydroxides by adding a base to the second 10 filtrate. The remaining solution was extracted and counter-extracted to obtain aqueous solutions of Co and Ni ions, which were subjected separately to a electrolysis to deposit Co and Ni metals. Li ions in the residue solution from the electrolysis of Ni was precipitated as carbonate by adding a soluble carbonate salt.